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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* WLODEK MANDECKI, MARYANN GRUDA,  
ZIYE QIAN, and EFRAIN RODRIGUEZ

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Appeal 2019-003829  
Application 13/239,779  
Technology Center 1700

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Before MICHAEL P. COLAIANNI, GEORGE C. BEST, and  
DEBRA L. DENNETT, *Administrative Patent Judges*.

COLAIANNI, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) the final rejection of claims 5, 14, 27, 28, and 30–37.<sup>1</sup> Claims 16, 17, and 38–40, the other claims pending in this application, stand withdrawn from consideration by the Examiner. Claims 1–4, 6–3, 15, and 18–26 are canceled. We have jurisdiction over the appeal pursuant to 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies PharmaSeq, Inc. as the real party in interest (Appeal Br. 3).

## STATEMENT OF THE CASE

Appellant's invention is directed to light-activated microtransponders, which are affixed to small biochemical containers and reaction vessels, such as test tubes and vials (Spec. ¶ 2). The Specification describes that these microtransponders facilitate the identification of biochemical samples during testing (*id.* ¶ 3). According to the Specification, tagging test tubes and vials with light-activated microtransponders is said to improve upon such tagging with conventional barcodes or radio frequency identification devices (RFID) (*id.* ¶¶ 4–15).

Claim 32 is illustrative (emphasis added):

32. A system for storing samples comprising:

a low temperature biorepository;

*a box comprising a rack for plastic biorepository test tubes providing a form factor configured with test tube positions to hold 48 or more said plastic test tubes, the rack containing at one or more said positions a said plastic test tube, wherein the plastic test tube has a containment wall, and having a light-triggered microtransponder [(MTP)] embedded within the containment wall at the bottom of the test tube near the center of the test tube, oriented for reading from below the test tube, the box configured to allow MTPs at the test tube positions to be queried without opening the box;*

*twelve or more light sources configured to trigger the microtransponder and align with twelve or more said test tube positions provided by the form factor such that the light-triggered microtransponder when positioned at any of said twelve or more positions is aligned for triggering;*

*wherein the form factor configured to operate with the light sources to serially align the light sources with the test tube positions such that the light-triggered microtransponder of the plastic test tube can be triggered when located in any of the test tube positions; and*

the system configured for (i) removing the box from the biorepository, (ii) without opening the box[,] scanning the test tube positions for microtransponder triggering, and (iii) returning the box to the biorepository while maintaining the plastic test tube at a temperature of -40°C or less, wherein the light source is effective to trigger the microtransponder in the plastic test tube at said temperature.

Appeal Br. 17–18 (Claims App.).

The Examiner maintains the following rejection:<sup>2</sup>

1. Claims 5, 14, 27, 28, and 30–37 are rejected under 35 U.S.C. § 103(a) as unpatentable over Muller-Cohn et al. (US 2008/0307117 A1; published Dec. 11, 2008, “Muller-Cohn”), in view of Mandeck et al. (US 2003/0062988 A1; published Apr. 3, 2003, “Mandeck”), Armer et al. (US 7,098,394 B2; issued Aug. 29, 2006, “Armer”), and further in view of Jonathan Collins, *Putting Tags on Test Tubes*, RFID Journal Live, published Apr. 29, 2004, ninth ed. (2013) <http://www.rfidjournal.com/articles/view?922> (last accessed May 30, 2013) (“Maxell”) (Final Act. 3–6).

Of claims 5, 14, 27, 28, and 30–37, Appellant offers separate arguments in support of 5, 14, 27, 28, 30, and 32–37 (*see, e.g.*, Appeal Br. 12–14). Dependent claim 31 will stand or fall with our analysis of independent claim 32 from which it depends. Claims 5, 14, 27, 28, 30, and 32–37 will be discussed separately.

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<sup>2</sup> The Examiner has withdrawn the rejection of claims 5, 14, 27, 28, and 30–37 under 35 U.S.C. § 112(b) as set forth in the Final Office Action (Ans. 7).

### FINDINGS OF FACT & ANALYSIS

After review of the respective positions provided by Appellant and the Examiner, we affirm the Examiner's prior art rejection under 35 U.S.C. § 103(a) for the reasons presented by the Examiner and add the following for emphasis.

A. Rejection of claims 5, 14, 27, 28, and 30–37 as unpatentable over the combination of Muller-Cohn, Manddecki, Armer, and Maxell.

1. Claims 31 and 32

With regard to claims 31 and 32, the Examiner's findings and conclusions regarding Muller-Cohn, Manddecki, Armer, and Maxell are located on pages 3–6 of the Final Office Action.

The Examiner finds that Muller-Cohn would have rendered obvious each component and limitation of the system for storing samples recited in independent claim 32, except that Muller-Cohn does not disclose three recited features (Final Act. 3–6).

Regarding Muller-Cohn's first missing feature, the Examiner finds that Muller-Cohn's biological samples in storage devices tagged with RFIDs do not teach light-triggered MTP tags (*id.* at 4).

The Examiner, however, finds that Manddecki discloses the use of small MTPs, which transmit output signals in response to a light source (*id.*). The Examiner finds Manddecki teaches that the MTPs can be used in a system for identifying objects comprised of plastic (*id.*). The Examiner finds that Armer teaches an adjustable light source for controlling which particular unlit plastic-coated MTPs respond to light during an assay (*id.* at 5).

The Examiner determined that it would have been obvious for one of ordinary skill in the art at the time of the invention

to use [Mandecki's or Armer's] light activated microtransponders and light sources . . . in [Muller-Cohn's] storage devices . . . to improve upon traditional RFID tags such that the tags are low cost, compact, long range, have virtually unlimited life, and have improved functionality such as improved rejection of interference and reduction of noise level as the transponders are inactive until illuminated by the light source.

(*Id.*).

With respect to Muller-Cohn's second missing feature, the Examiner finds that "Muller-Cohn does not specifically teach the location of the embedded MTP . . . in the bottom of the test tube" (*id.*).

The Examiner, however, finds Maxell teaches that RFID tags may be affixed to the center bottom of a test tube (*id.*). According to the Examiner, Maxell teaches that a trayful of these RFID tagged tubes may be identified by an RFID reader placed underneath the tray (*id.*). The Examiner determined

that it would have been obvious for one of ordinary skill in the art at the time of the invention was made to embed the light triggered MTPs of modified Muller-Cohn in the center bottom of the test tube as taught by Maxell in order that the reader can be easily placed under the tray of test tubes for recording a test tube's location history, contents, and any work carried out on the contents.

(*Id.*).

Regarding Muller-Cohn's third missing feature, the Examiner finds that Muller-Cohn's sample storage system comprising an array of 96, 384, or 1536 samples does not disclose or suggest "an array of 12, 24, or 48, or

more discrete light sources configured to read 24 or more assemblies situated in the rack” (*id.* at 6).

The Examiner, however, finds Mandecki’s small light-triggered MTPs “can be used in an array of articles comprised of plastic and other materials or combinations” (*id.*). The Examiner finds Mandecki’s light-triggered MTPs may be activated by “a plurality of light signals” (*id.*).

The Examiner determined that it would have been obvious for one of ordinary skill in the art at the time of the invention was made “to use the appropriate amount of [Mandecki’s] plurality of light sources . . . to activate [modified Muller-Cohn’s] plurality of light activated microtransponders . . . in order to produce a plurality of output signals for the array of the assemblies in an efficient and rapid method” (*id.*).

Appellant argues that the Examiner’s applied prior art would not have rendered obvious each limitation recited in claim 32 (*see* Appeal Br. 8–12; *see also* Reply Br. 2–5). Specifically, Appellant contends that Muller-Cohn’s biological sample storage device comprising a sample plate and a lid is distinguished from the claimed test tube (Appeal Br. 9–11; *see also* Reply Br. 2–3). Appellant argues that Mandecki and Armer do not cure Muller-Cohn’s deficiencies because nothing in the applied prior art “discloses or suggests operating a biorepository with the samples tracked at the individual test tube level” (Appeal Br. 11).

Appellant’s arguments are not persuasive. As the Examiner finds, Muller-Cohn teaches that plastic storage devices, such as the claimed test tube, box, and rack are known (Final Act. 4 (citing Muller-Cohn ¶¶ 4, 67 (Disclosing “storage containers . . . tubes and plates made of . . . plastic.”))). Even assuming that Muller-Cohn’s teachings are limited to sample plates

with microwells, Muller-Cohn teaches a sample storage device having one plastic well (Muller-Cohn ¶¶ 14, 67, 85). Thus, we are persuaded by the Examiner that Muller-Cohn's one-welled sample storage device would have reasonably suggested the claimed test tube to one of ordinary skill in the art (*see* Ans. 8).

Appellant argues that Maxell merely teaches “a separate, bulky bottom appendage for storing the RFID tag,” which “is not within the containment wall of the test tube” (Appeal Br. 11–12). Appellant argues that a single RF signal would have produced undesirable cross-talk from Maxell's boxed RFID tubes (*id.* at 12).

We, however, agree with the Examiner that this argument attacks Maxell individually instead of addressing what the combined teachings of the applied prior art would have suggested to the ordinarily skilled artisan. *In re Keller*, 642 F.2d 413, 425 (CCPA 1981). Appellant's argument thus fails to identify reversible error in the Examiner's findings that Muller-Cohn, as modified by Mandecky or Armer, and Maxell, would have suggested the placement of affixed MTP tags at the center bottom of a test tube to facilitate reading of particular MTPs from underneath, without RFID cross-talk (Final Act. 3–6; *see also* Ans. 8–9).

Appellant asserts that Mandecky teaches a single MTP, not a plurality of light-triggered MTPs (Reply Br. 2).

The Examiner, however, finds that Mandecky refers to use of “one or more photoactivated microtransponders” (Mandecky ¶ 7; *see also* Final Act. 4).

Appellant argues that “nothing Muller-Cohn discloses or suggests a system operative at -40°C” (Appeal Br. 11, 12). Appellant argues that

Mandecki and Armer do not cure Muller-Cohn's deficiencies because nothing in the applied prior art "discloses or suggests that operations to read the MTPs can be conducted with a box of sample tubes while maintaining an extremely cold temperature at the test tube level" (*id.* at 11). Appellant argues that nothing in Mandecki discloses or suggests the claimed system "*configured* to trigger the microtransponder and align with twelve or more said test tube positions . . . such that the light-triggered microtransponder when positioned at any of said twelve or more positions is aligned for triggering" (Reply Br. 2 (emphasis added)). Specifically, Appellant argues that the Examiner

never credibly applied the cited art to the claim limitation: the system *configured for* (i) removing the box from the biorepository, (ii) without opening the box scanning the test tube positions for microtransponder triggering, and (iii) returning the box to the biorepository while maintaining the plastic test tube at a temperature of -40°C or less

(*id.* at 3–4, (emphasis added)).

Appellant's arguments are not persuasive.

As the Examiner finds, "Muller-Cohn teaches automated storing, tracking, retrieving, and analyzing biological samples using RFID tagged biological storage devices" (Final Act. 3 (citing Muller-Cohn Abstract) (emphasis omitted)). The Examiner finds "Muller-Cohn teaches that the RFID chips on the storage devices can be expanded to monitor and process data related to the movement and analysis of a sample or storage device located in a laboratory manipulated by laboratory robots" (Final Act. 3 (citing Muller-Cohn ¶ 131)). The Examiner finds Muller-Cohn teaches that it was conventionally known that biological samples may be stored at temperatures encompassing the claimed range (Final Act. 3 (citing Muller-

Cohn ¶¶ 4, 5); Ans. 8). The Examiner, moreover, finds Muller-Cohn's system includes

a computer-implemented system for receiving, storing, processing, and communicating data regarding [a biological] sample device; and a radio frequency interface between the sample device and the computer-implemented system for providing a communication link between the computer-implemented system and the sample device

(Ans. 10 (citing Muller-Cohn ¶ 11)).

Based on these findings, the Examiner reasonably concluded that modified "Muller-Cohn teaches all of the structural limitations of the claims" (Ans. 10; *see also* Final Act. 3–6). In other words, the Examiner has provided a well-reasoned analysis of how and why the ordinarily skilled artisan would have reasonably expected that Muller-Cohn's automated system for storing samples, modified with Mandecki's or Armer's light sources and light activated MTPs, which are affixed at the center bottom of a test tube as taught by Maxell, would have been capable of removing, scanning, and returning a closed box as recited in claim 32.

On this record, Appellant has not met the burden of showing that the Examiner's proposed system for storing samples cannot be configured to: (i) remove a box from a biorepository; (ii) scan the test tube positions for microtransponder triggering without opening the box; and (iii) return the box to the biorepository while maintaining the plastic test tube at a temperature of -40°C or less. *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977) (Explaining that "[w]here . . . the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his

claimed product.”); *see also In re Schreiber*, 128 F.3d 1473, 1477 (Fed. Cir. 1997) (Court found no dispute that claimed and prior art product had the same structure so that the prior art structure is capable of performing the recited function.); and *Intel Corp. v. U.S. Int’l Trade Comm’n*, 946 F.2d 821, 832 (Fed. Cir. 1991) (Courts have interpreted functional language in an apparatus claim as requiring that the prior art apparatus possess the capability of performing the recited function.).

Accordingly, Appellant’s arguments do not persuasively address the Examiner’s reasoning, which supports the findings and conclusions in the stated rejection. Therefore, Appellant’s arguments are insufficient to convince us of reversible error in the Examiner’s rejection.

Thus, based on a preponderance of evidence in this record, we sustain this rejection as to claims 31 and 32.

2. Claims 5 and 28

With regard to claims 5 and 28, the Examiner’s findings and conclusions regarding Muller-Cohn, Mandrecki, Armer, and Maxell are located on page 3 of the Final Office Action. Claims 5 and 28 are set forth below:

5. The system of claim 32, wherein the light-triggered microtransponder is sealed from the outside with polypropylene or acetal polymer.

28. The system of claim 32, wherein the light-triggered microtransponder is sealed from the outside with polypropylene.

Appeal Br. 17 (Claims App.).

The Examiner finds that “modified Muller-Cohn teaches wherein the MTP is sealed from the outside with polypropylene or acetal polymer” (Final Act. 3 (citing Muller-Cohn ¶¶ 45, 126)).

Appellant, however, argues that “Muller-Cohn does not put a transponder *in a test tube*, only in a biological sample storage device, which in fact is a plate with wells” (Appeal Br. 12 (emphasis added)).

For the reasons set forth above and in the Answer, Appellant has not identified reversible error in the Examiner’s findings that Muller-Cohn’s plastic one-welled sample storage device would have reasonably suggested the claimed plastic test tube (*see* Ans. 8; *see also* Muller-Cohn ¶¶ 14, 67 (“[T]ubes . . . made of . . . plastic.”), 85; Mandeck ¶ 24; and Armer 2:10–12). Appellant, moreover, admits that “Muller-Cohn might [have] suggest[ed] that a device like the Maxell test tube can be used in connection with one . . . of its embodiments” (Reply Br. 3 (citing Muller-Cohn ¶ 125)).<sup>3</sup>

Thus, based on a preponderance of evidence in this record, we sustain this rejection as to claims 5 and 28.

### 3. Claims 14, 27, and 34

With regard to claims 14, 27, and 34, the Examiner’s findings and conclusions regarding Muller-Cohn, Mandeck, Armer, and Maxell are

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<sup>3</sup> Appellant argues that Muller-Cohn “very explicitly does not say that the test tube,” which a transponder 110 can be affixed to “is a storage device 102” (Reply Br. 3 (citing Muller-Cohn ¶ 125)). However, the absence of this explicit disclaimer is not dispositive. *See In re Preda*, 401 F.2d 825, 826 (CCPA 1968) (“[I]n considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom.”).

located on page 3 of the Final Office Action. Claims 14, 27, and 34 are set forth below (emphasis added):

14. The system of claim 32, *wherein the system is configured to remove, scan and return the box while maintaining a temperature of -50°C or less.*

27. The system of claim 32, *wherein the system is configured to remove, scan and return the box while maintaining a temperature of -70°C or less.*

Appeal Br. 17 (Claims App.).

34. The system of claim 32, *wherein the system is configured to remove, scan and return the box while maintaining the plastic test tube at a temperature of -60°C.*

*Id.* at 18.

Appellant argues that Muller-Cohn does not teach or suggest the limitations recited in these claims because the Examiner's relied upon passage is merely introductory text, which does not refer to the inventive embodiments therein (Appeal Br. 12–13; *see also* Final Act. 3 (citing Muller-Cohn ¶¶ 4, 5)).

Appellant's arguments are not persuasive because, *inter alia*, Muller-Cohn teaches that storing samples in tubes, boxes, and racks at the requisite temperatures was conventional (Muller-Cohn ¶¶ 4, 5). *See In re Fritch*, 972 F.2d 1260, 1264 (Fed. Cir. 1992) (Explaining that “[i]t is well settled that a prior art reference is relevant for all that it teaches to those of ordinary skill in the art.”). The Examiner, moreover, did not rely upon Muller-Cohn's description of the prior art alone in rejecting claims 14, 27, and 34, which depend on claim 32 (*see* Final Act. 3–6).

For the reasons set forth above and in the Answer, the Examiner reasonably concluded that modified “Muller-Cohn teaches all of the structural limitations of the claims” (Ans. 10). Appellant, therefore, has not

met the burden of showing that the Examiner's proposed system for storing samples cannot be *configured to*: (i) remove a box from a biorepository; (ii) scan the test tube positions for microtransponder triggering without opening the box; and (iii) return the box to the biorepository while maintaining the plastic test tube at a temperature of -50°C or less, -70°C or less, or -60°C or less. *See Best*, 562 F.2d at 1255; *see also Schreiber*, 128 F.3d at 1477; and *Intel*, 946 F.2d at 832.

Thus, based on a preponderance of evidence in this record, we sustain this rejection as to claims 14, 27, and 34.

#### 4. Claims 33 and 37

With regard to claims 33 and 37, the Examiner's findings and conclusions regarding Muller-Cohn, Mandrecki, Armer, and Maxell are located on pages 3–4 of the Final Office Action. Claims 33 and 37 are set forth below:

33. The system of claim 32, further comprising *an automated robot for moving the box from the biorepository to the light source and back*.

Appeal Br. 18 (Claims App.) (emphasis added).

37. The system for storing samples of claim 33, wherein:  
*the robot is configured to serially align the box with the multiple said light sources such that the light-triggered microtransponder can be read with its plastic test tube located in any of the plastic test tube positions.*

*Id.* at 19.

Appellant argues that Muller-Cohn's robotics have nothing to do with movement of a biorepository, or with serially aligning with multiple light sources (Appeal Br. 13 (citing Muller-Cohn ¶ 131)).

Appellant's arguments are not persuasive for the reasons set forth above sustaining this rejection of claims 12, 27, 31, 32, and 34 as obvious. *See Best*, 562 F.2d at 1255; *see also Schreiber*, 128 F.3d at 1477; and *Intel*, 946 F.2d at 832.

Thus, based on a preponderance of evidence in this record, we sustain this rejection as to claims 33 and 37.

5. Claims 30 and 35–37

With regard to claims 30 and 35–37, the Examiner's findings and conclusions regarding Muller-Cohn, Mandeck, Armer, and Maxell are located on pages 3–4 of the Final Office Action. Claims 30, 35, and 36 are set forth below:

30. The system of claim 32, wherein:

*the rack providing the form factor is configured to hold 96 or more such test tubes; and the system comprises an array of 24 or more discrete such light sources configured to read 24 or more said test tubes with embedded light-triggered microtransponders situated in the rack.*

Appeal Br. 17 (Claims App.) (emphasis added).

35. The system for storing samples of claim 32, wherein:

*the system comprises an array of 24 or more discrete such light sources configured to read 24 or more said plastic test tubes with embedded light-triggered microtransponders situated in 24 positions in the rack.*

*Id.* at 18.

36. The system for storing samples of claim 32, wherein:  
*the system comprises an array of 48 or more discrete such light sources configured to read 48 or more said plastic test tubes with embedded light-triggered microtransponders situated in 48 positions in the rack.*

*Id.* at 19.

The Examiner supports the rejection of these claims by determining, *inter alia*, that a mere duplication of modified Muller-Cohn's parts has no patentable weight (Final Act. 6).

Appellant argues that "the prior art does not have the parts in the relevant context to duplicate" (Appeal Br. 13). With respect to claim 37, Appellant argues that nothing in the Examiner's proposed modification "discloses or suggests serially aligning the box with the light sources so that more locations can be serially aligned" (Appeal Br. 13–14).

Appellant's arguments are not persuasive.<sup>4</sup> For the reasons set forth above and in the Answer, the Examiner reasonably concluded that modified "Muller-Cohn teaches all of the structural limitations of the claims" (Ans. 10; *see also* Final Act. 3–6). *See Best*, 562 F.2d at 1255; *see also Schreiber*, 128 F.3d at 1477; *Intel*, 946 F.2d at 832.

Furthermore, Appellant's argument fails to identify reversible error in the Examiner's reasoned determination that it would have been obvious for one of ordinary skill in the art at the time of the invention was made to use the appropriate number of Mandeck's plurality of light sources to activate

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<sup>4</sup> Appellant generally argues that "[e]xpansive claim interpretations play a role with the Office's application of the cited art against the current claims." (Appeal Br. 14). Appellant, however, does not identify which particular claim terms the Examiner allegedly interpreted expansively (*see id.* at 14–15).

modified Muller-Cohn's plurality of light activated MTPs in order to efficiently and rapidly produce a plurality of output signals for the claimed arrays (Final Act. 6; *see also* Mandecki ¶¶ 7, 38).

Thus, based on a preponderance of evidence in this record, we sustain this rejection as to claims 30 and 35–37.

### CONCLUSION

In summary:

<b>Claims Rejected</b>	<b>35 U.S.C. §</b>	<b>Reference(s)/Basis</b>	<b>Affirmed</b>	<b>Reversed</b>
5, 14, 27, 28, 30–37	103(a)	Muller-Cohn, Mandecki, Armer, and Maxell	5, 14, 27, 28, 30–37	

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED